

ENVIRONMENTAL PROTECTION AGENCY

REGION II

DATE: APR 01 1991

SUBJECT: Elizabeth Coal Gas Site #2, Elizabeth, New Jersey

FROM: *R. Salkie*  
Richard C. Salkie, Associate Director for  
Removal and Emergency Preparedness Programs

TO: Vincent Pitruzzello, Chief  
Program Support Branch

Based on the analysis of the Field Investigation Team (FIT) activities, as presented in a September 17, 1990 memorandum from the Pre-Remedial and Technical and Support Section, a November 8, 1990 site reconnaissance and a February 21, 1991 ATSDR Health Consultation the site is removal eligible. The Removal Site Evaluation document is attached as a reference.

If you should have any questions or require further information please feel free to contact either Nick Magriples at FTS 340-6930 or John Witkowski at FTS 340-6739.

Attachment

cc: G. Zachos ERR-RAB (w/attachment)✓  
D. Santella, ERR-PTS (w/attachment)  
R. Spear, ES-SM (w/attachment)



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## REGION II

DATE: MAR 28 1991

SUBJECT: Removal Site Evaluation for Elizabeth Coal Gas Site #2,  
Elizabeth, New JerseyFROM: Nick Magriples, On-Scene Coordinator *Nick Magriples*  
Removal Action Branch

TO: File

I. INTRODUCTION

On October 19, 1990, the United States Environmental Protection Agency (EPA), Removal Action Branch, received a request from the Pre-Remedial and Technical Support Section to consider the Elizabeth Coal Gas Site #2 for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Removal Action consideration.

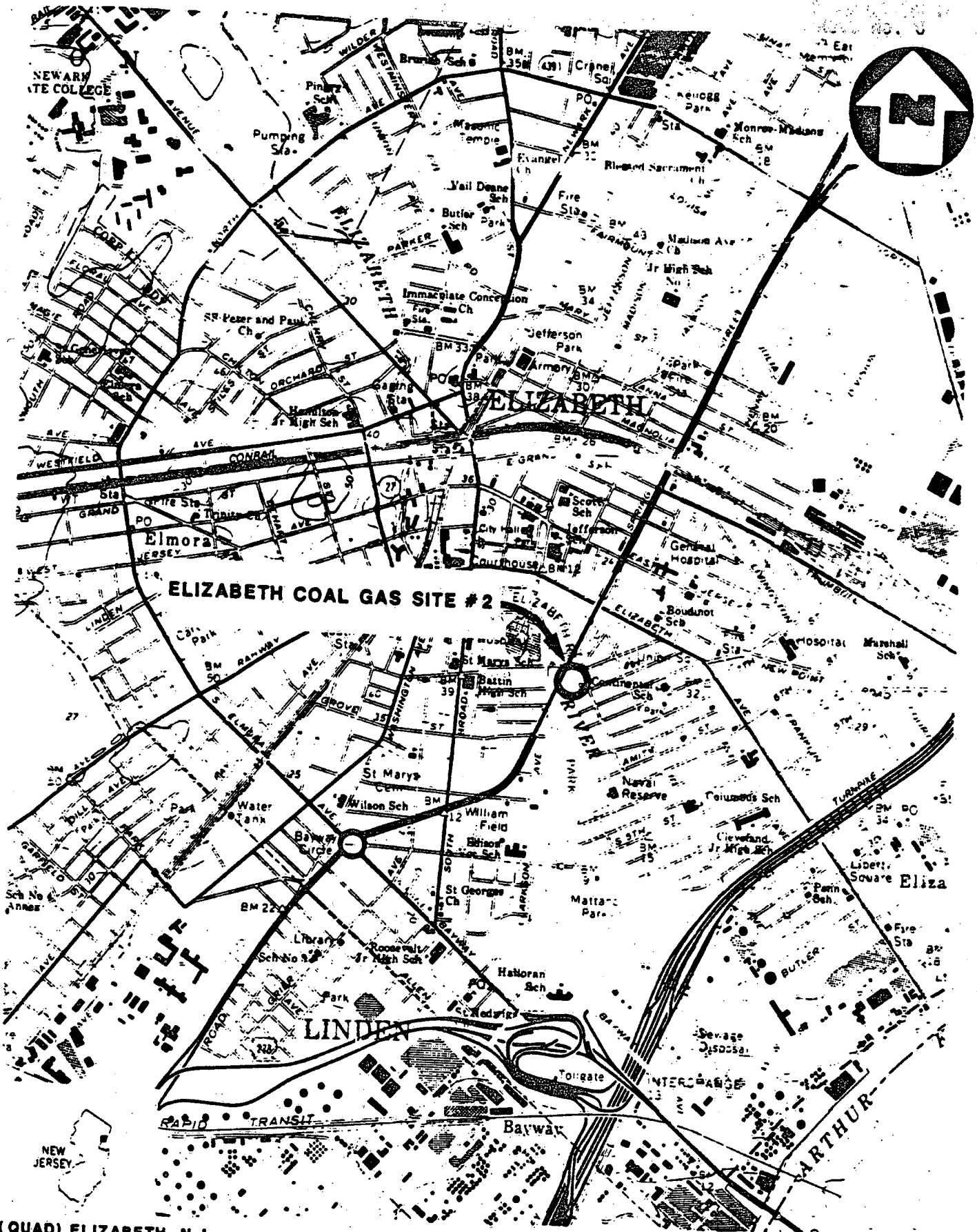
There has been a release to the environment of hazardous substances, due to past activities, at the Elizabeth Coal Gas Site #2. Additionally, an Agency for Toxic Substances and Disease Registry (ATSDR) Health Consultation has indicated that the levels of polyaromatic hydrocarbons (PAHs) present at the site could pose a public health threat to the young children that play in the area. Therefore, a CERCLA Removal Action is recommended at this time to mitigate the threat.

II. PERSONNEL INVOLVED

The following EPA personnel were directly involved in the Removal Assessment conducted for the Elizabeth Coal Gas Site #2: Nick Magriples (201-906-6930), Mark Pane (201-906-6813) and Mike Ferriola (201-321-4342) of the Removal Action Branch, Edison, New Jersey. The descriptive and analytical information presented in this evaluation was obtained from a September 17, 1990 Site Inspection Report completed by the Field Investigation (FIT) Team for the EPA's Environmental Services Division.

III. SITE SETTING

The Elizabeth Coal Gas Site #2 is an inactive former coal gasification plant, located at 406 South Street, Elizabeth, New Jersey (see Figure 1). The neighborhood is a residential and commercial/industrial area. Approximately 49,600 people live within one mile of the site. The Elizabeth River runs along the western and southern edges of the property, and the U.S. Routes 1 and 9 Viaduct passes over the northwest corner of the property.



# **SITE LOCATION MAP**

**ELIZABETH COAL GAS SITE #2, ELIZABETH, N.J.**

SCALE: 1" = 2000'

**FIGURE 1**



The site, approximately 2 acres in size, is made up of two sections; an active salvage area to the north, and a public access baseball field and flood control area to the south (see Figure 2).

There are reportedly no people served by the aquifer of concern within three miles of the site. All public water is supplied by the Elizabethtown Water Company and the City of Newark Water Department. These utilities receive water from reservoirs not located within three miles of the site.

#### IV. BACKGROUND

For a detailed explanation of the history of the site, refer to the September 17, 1990 FIT Site Inspection Report (see Attachment A).

#### V. SITE ACTIVITIES/OBSERVATIONS

The Removal Action Branch conducted a reconnaissance of the site on November 8, 1990. The ballfield and the area under the viaduct are accessible from several points on South, Centre and High Streets. Houses border the property along the east side. Although the field is in poor condition for baseball, at the time of the site visit there were orange cones present probably outlining football field boundaries.

The soil on the ground surface appears to be fairly compacted in most areas. There are several wet spots near the bulkhead and the sloped area under the viaduct.

#### VI. MATERIALS

Sampling was conducted at the site in January, 1987, for the New Jersey Department of Transportation (NJDOT), under the Routes 1 and 9 - Elizabeth River Viaduct Eastern Alignment Widening Program. Borings and test pits were completed north of a line drawn west from Centre Street. Other than retort slag, there was reportedly no visual evidence of coal gasification wastes present.

Analysis of soil samples from the borings and test pits revealed PAHs at concentrations ranging from 40 parts per million (ppm) to 3,090 ppm in a majority of the samples. Cyanide was detected within several of the test pits at a maximum concentration of 359 ppm (3.5 feet depth). Maximum concentrations of lead and cadmium, at levels of 847 ppm (5.5 feet depth) and 5.7 ppm, respectively, were also detected. The highest concentrations were detected at depths of three to nine feet.

Sampling conducted as part of the FIT Investigation in June, 1990

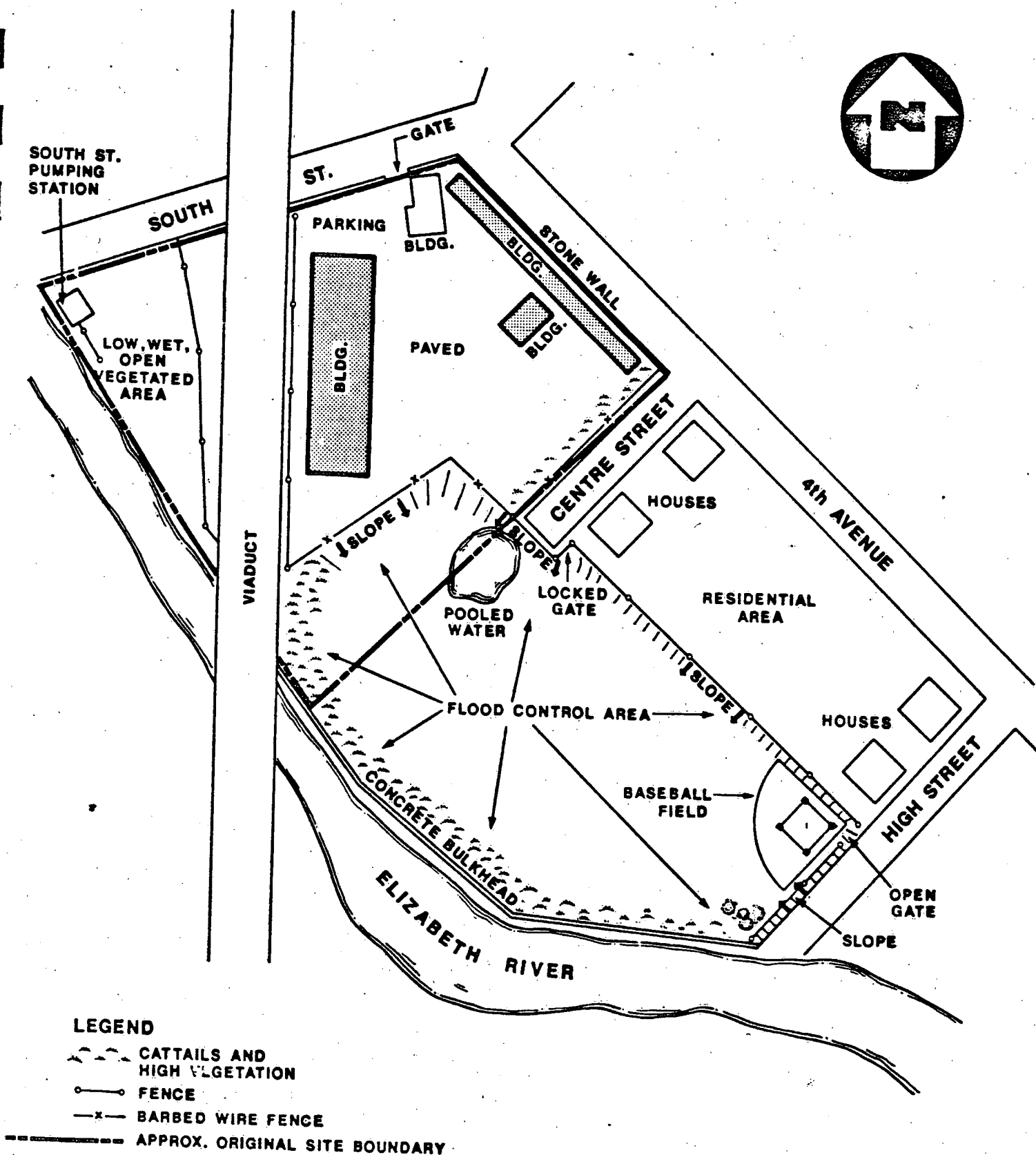


FIGURE 2



revealed 2-methyl naphthalene (3,300 ppm), benzene (82 ppm), chromium (489 ppm) and arsenic (29.2 ppm). Although the highest concentrations were detected at depths of 18 - 30 inches, PAHs were also detected at the surface.

#### VII. THREAT

A Health Consultation provided by ATSDR (see Attachment B) has indicated that the levels of PAHs present at the site could pose a public health threat to the young children that play in the area. The most realistic exposure pathway is one of direct contact with the surface soils. The Health Consultation discusses the health effects of exposures to the materials of concern.

#### VIII. CONCLUSION

There has been a release to the environment of hazardous substances, due to past activities, at the Elizabeth Coal Gas Site #2. A threat of direct contact with contaminated surface soils is present for the children that use the area as a playground.

#### IX. RECOMMENDATIONS

A CERCLA Removal Action is recommended at this time to mitigate the threat at the site. Some of the possible mitigative measures that could be implemented are: installation of a fence, excavation of the surface soils or application of a cover. The possibility of vandalism to the fence exists in this area. If a fence is installed, consideration should be given to the extent of surface contamination and its relative threat as compared to those values evaluated by ATSDR. It may be unnecessary to fence the entire site if the surface contamination is limited. This may be desirable since it would still allow access to the part of the field that is actually used and may lessen the chances of the fence being vandalized.

Excavation of the surface soils could result in contact with materials in the subsurface with greater contaminant levels. Due to the use of the area for flood control, a cover could possibly be washed away.

The Pre-Remedial and Technical Support Section should continue and complete the site ranking to determine if a remedial response is warranted. Should the site not rank on the National Priorities List (NPL), it should be referred to the New Jersey Department of Environmental Protection for possible actions.

**ATTACHMENT A**

02-9004-38-SI  
REV. NO. 0

FINAL DRAFT  
SITE INSPECTION REPORT  
ELIZABETH COAL GAS SITE #2  
ELIZABETH, NEW JERSEY  
VOLUME 1 OF 2

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-9004-38  
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION  
U.S. ENVIRONMENTAL PROTECTION AGENCY

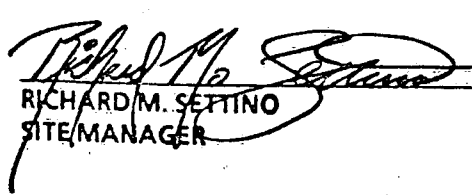
SEPTEMBER 17, 1990

NUS CORPORATION  
SUPERFUND DIVISION

SUBMITTED BY:

  
DAVID J. GRUPP  
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REVIEWED/APPROVED BY:

  
RICHARD M. SETTINO  
SITE MANAGER

  
RONALD M. NAMAN  
FACILITY OFFICE MANAGER



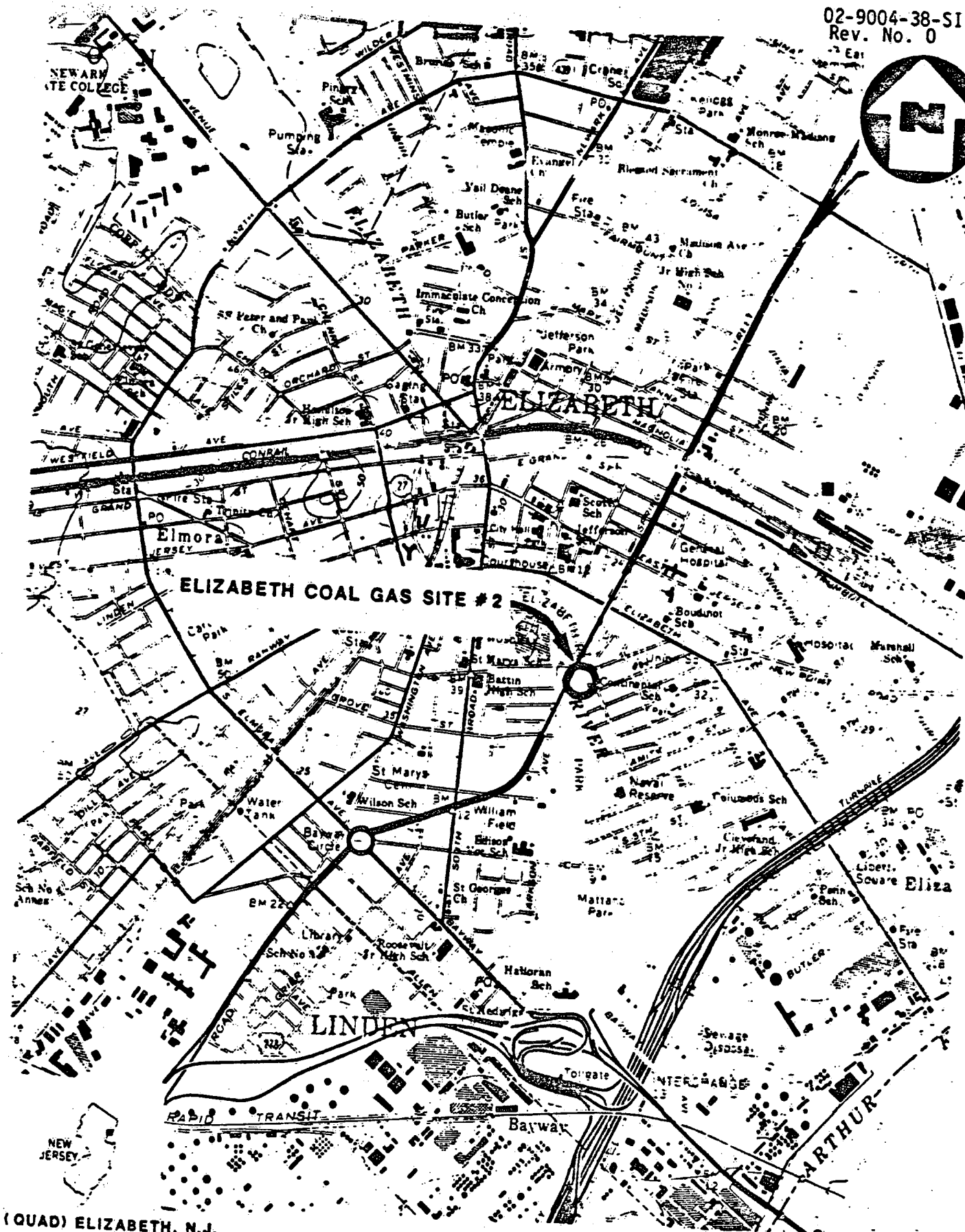
## **PART II: WASTE SOURCE INFORMATION**

The site was used for the production of coal gas from 1855 to approximately 1901. The uses of the site from 1901 until its present uses by a salvage company and for flood control are unknown. Wastes produced on site were the result of the gasification processes. These wastes typically include ammonia, ammonium sulfate, sulfur, coke, coal tar, coal tar pitch, clinker, and light oils. The coal tar may contain significant concentrations of pyrene, anthracene, and other polynuclear aromatic hydrocarbons (PAHs), including known or suspected carcinogens (Ref. No. 1, p.4 and Attachment B). Actual waste handling practices that occurred at the plant are largely unknown. Wastes were reported to be disposed of in unlined pits primarily on the northern portion of the site and most likely extended into the southern portion also. Low grade tar and tar-water mixtures along with spent oil were most likely dumped on site. During an NUS Corp. Region 2 FIT site inspection a substance assumed to be coal was discovered in on-site soils, and a substance assumed to be solidified coal tar was encountered while collecting a subsurface soil sample (Ref. No. 2). It is reported that some remedial action was taken by the Elizabethtown Gas Light Company; however, the time and extent of remediation are unknown (Ref. No. 26).

The structures that existed on site in 1903 are as follows: two gas storage tanks of unknown size, two sheds, a blacksmith shop, a purifying house, a retort building, two coal sheds, an engine house, and an office building (Ref. No. 1, p. 9). Aerial photographs show that most of the structures were removed from the site between 1959 and 1966 (Ref. No. 10). The retort house and office building still exist on site (Ref. No. 1). Figures 1 and 2 provide a Site Location Map and a present day Site Map, respectively. Figure 3 shows a Site Map of the former facility as it existed in 1903. There is no known containment associated with the waste pits. Potential for direct contact is high since there is a public-access baseball field located on the southern portion of the site (Ref. No. 2). The exact quantity of wastes deposited, as well as the size or exact location of any pits that currently exist or formerly existed on site, is unknown.

## **PART III: PRE-EXISTENT ANALYTICAL DATA**

From January 27 to February 5, 1987, eight soil borings were drilled and nine test pits were excavated on site by TAMS Consultants, Inc. (TAMS). Soil samples were collected from the borings and pits at this time for chemical analysis. All samples were analyzed for U.S. EPA Priority Pollutants plus 40 peaks (or selected fractions) and provided with NJDEP Tier II deliverables by Weston Analytics of Lionville, Pennsylvania. Analytical parameters included heavy metals, cyanide, phenolics, polynuclear aromatic hydrocarbons (PAHs), and volatile organic compounds. The area investigated was only in the northern portion of the site immediately under the viaduct. This area was to be used by the New



(QUAD) ELIZABETH, N.J.

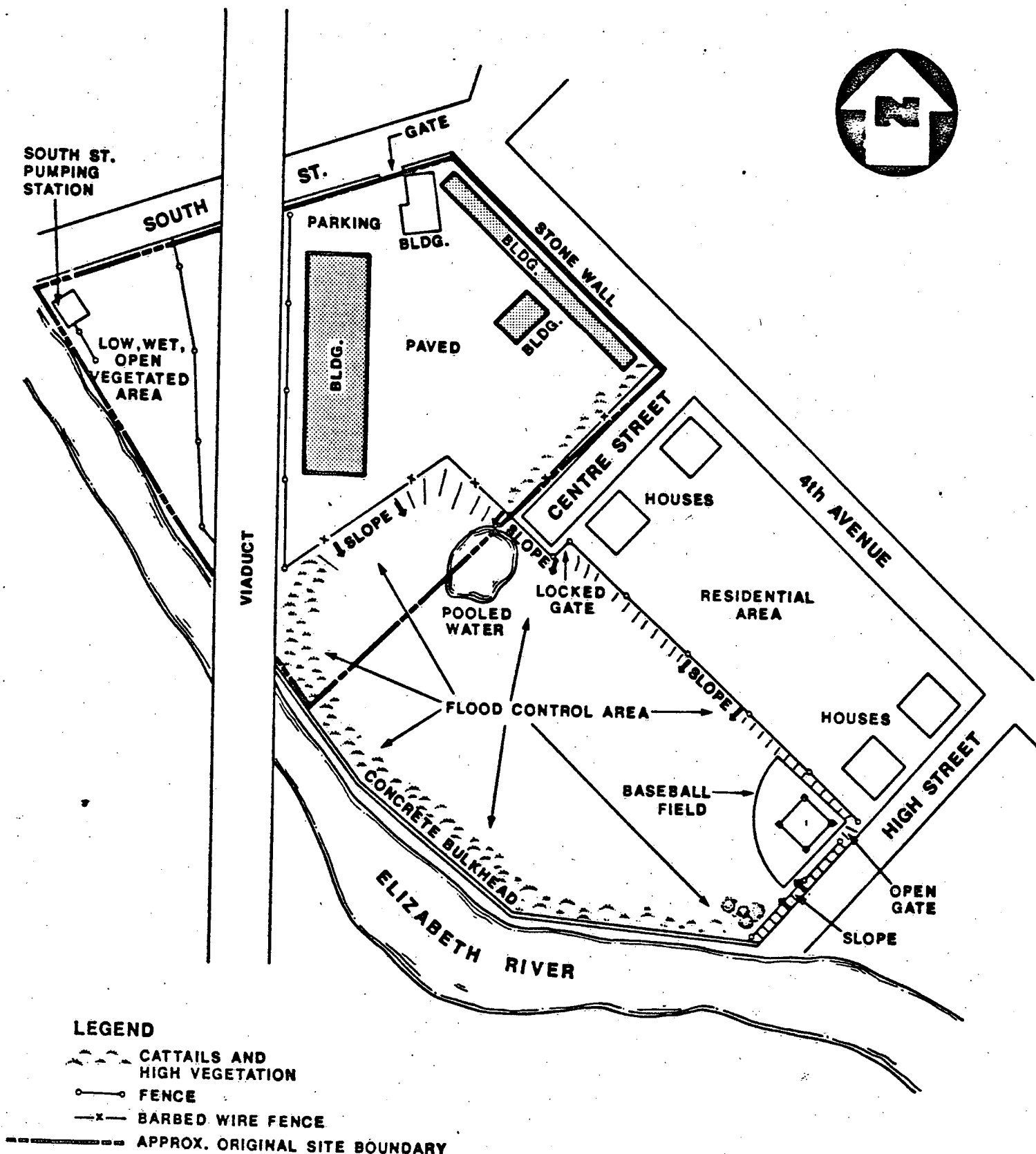
# SITE LOCATION MAP

**ELIZABETH COAL GAS SITE #2, ELIZABETH, N.J.**

SCALE: 1" = 2000'

**FIGURE 1**





SITE MAP

ELIZABETH COAL GAS SITE #2, ELIZABETH, N.J.

NOT TO SCALE

FIGURE 2



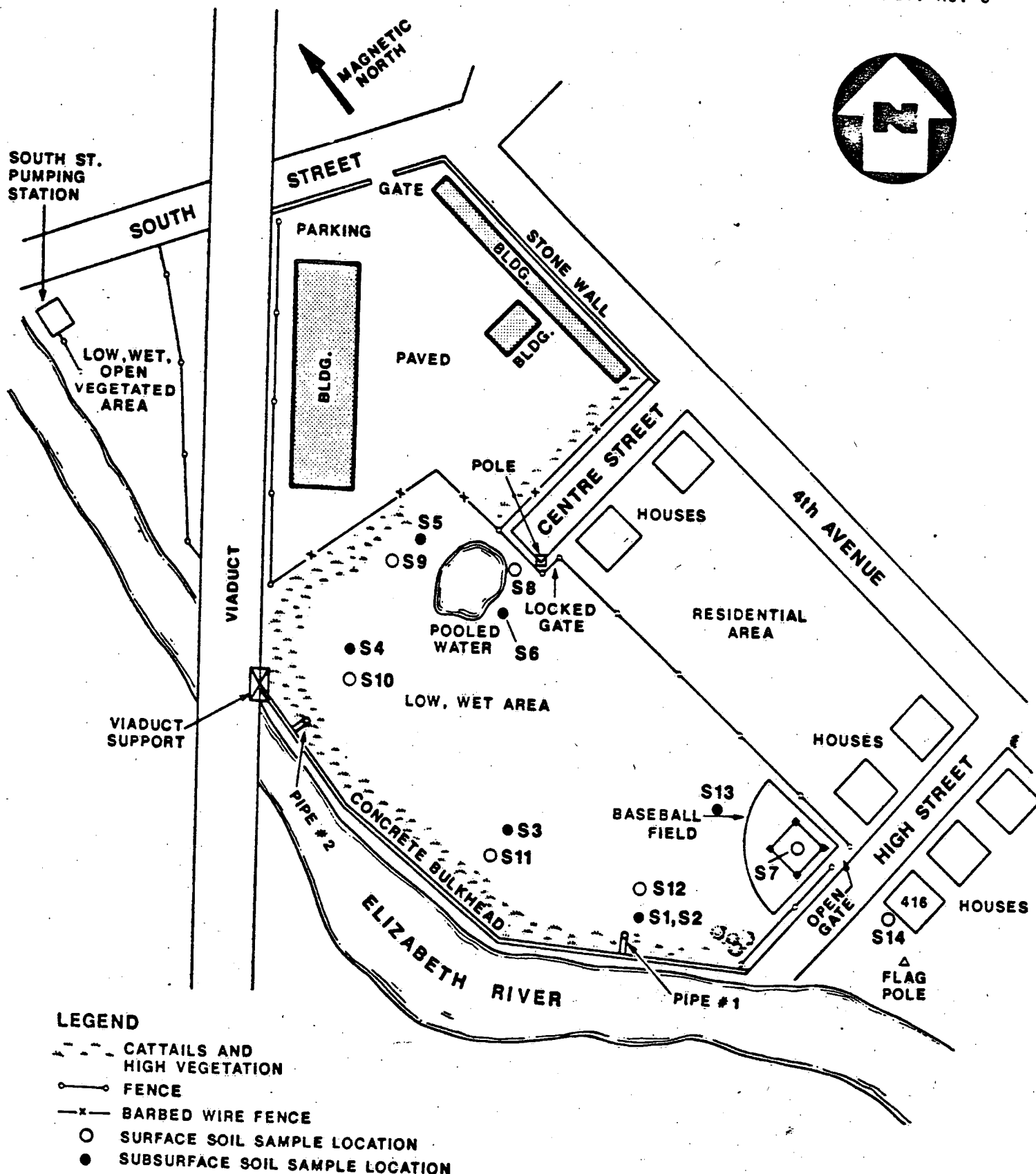
Jersey Department of Transportation (NJDOT) to widen the viaduct. The TAMS investigation did not include screening of the entire site. Refer to Reference No. 3, Figure 2 for the locations of the borings and test pits.

TAMS reported little visual evidence of coal gasification wastes to be present in these borings and test pits, with the exception of some subsurface retort slag. However, every soil sample tested exceeded the New Jersey Department of Environmental Protection informal action levels for at least one parameter. The inorganics exceeding action levels included cadmium, lead, and cyanide. Inorganic analyses are presented in Reference No. 3, Table 1. The most significant concentrations of organic contaminants detected were for PAHs, ranging from over 40 parts per million (ppm) to 3,090 ppm in eight of the twelve samples taken. High concentrations of other semivolatile organic (dibenzofuran and naphthalenes) and inorganic (lead) compounds were detected in association with the high PAH concentrations. Reference No. 3, Table 2 presents organic analysis results (Ref. No. 3).

#### **PART IV: SITE INSPECTION SAMPLE RESULTS**

The NUS Corporation Region 2 FIT (FIT) conducted a sampling site inspection at the Elizabeth Coal Gas Site #2 on June 12, 1990, during which seven surface and seven subsurface soil samples were collected (Ref. No. 2). The soil samples were collected to determine if any soil contamination or waste exists that can be attributed to previous coal gasification operations and to assess the potential for direct contact with contaminants present. The samples were analyzed under the Contract Laboratory Program (CLP) for Target Compound List (TCL) organic and inorganic constituents, including cyanide. All NUS Corporation Region 2 FIT analytical data sheets are provided in Ref. No. 27 of this report. Refer to Figure 4 for all sample locations and to Table 1 for a summary of the organic compounds detected in the soil samples. In the following discussion, all soil sample numbers are preceded by NJGA.

The site can be divided into two sections: the northern portion of the site occupied by Vignola Salvage Corp. and the southern portion owned by Union County. The northern portion of the site was previously sampled by TAMS Consultants, Inc and the data are summarized above. The FIT collected 13 surface and subsurface soil samples (S1 to S13), including a duplicate, from the southern portion of the site, and one surface soil sample (S14) from a residential property, located on the south side of High Street, to serve as a background sample. Sample locations were determined by using a thin-walled tube sampler at random subsurface locations around the site and marking the areas where waste was encountered and/or where readings significantly above background were registered on the HNU or OVA air monitoring instruments. No visual waste was encountered while using the tube sampler to determine the actual sample locations; however elevated readings



**SAMPLE LOCATION MAP**

**ELIZABETH COAL GAS SITE #2, ELIZABETH, N.J.**

NOT TO SCALE

**FIGURE 4**



**TABLE 1: SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES  
COLLECTED AT THE ELIZABETH COAL GAS SITE #2  
BY THE NUS CORP. REGION 2 FIT ON JUNE 12, 1990**

**COMPOUND**

**VOLATILES**

	<u>S1</u>	<u>S2</u>	<u>S3</u>	<u>S4</u>	<u>S5</u>	<u>S6</u>	<u>S7</u>	<u>S8</u>	<u>S9</u>	<u>S10</u>	<u>S11</u>	<u>S12</u>	<u>S13</u>	<u>S14</u>
Carbon Disulfide	J	J	ND	ND	10,000E	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	J	82,000E	ND	7	J	J	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	59,000E	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	14,000E	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ND	ND	ND	25	68,000E	ND	ND	ND	ND	ND	ND	ND	ND	ND

**SEMIVOLATILES**

Naphthalene	J	J	J	2,200	270,000E	ND	J	950	1,300	J	J	J	ND	J
2-Methylnaphthalene	J	J	J	J	3,300,000E	ND	ND	J	J	J	J	J	ND	J
Acenaphthylene	J	J	J	3,600	2,600,000E	ND	J	2,300	3,700	2,100	990	J	ND	J
Acenaphthene	J	850	J	1,100	460,000E	ND	J	J	J	J	J	J	ND	J
Dibenzofuran	J	J	J	ND	2,300,000E	ND	ND	J	860	J	J	J	ND	J
Phenanthrene	2,900	5,300	3,600	44,000	220,000E	ND	740	11,000	20,000	7,900	5,200	3,700E	ND	10,000
Anthracene	1,300	2,800	1,300	7,600	2,900,000E	ND	J	3,800	5,200	1,700	1,300	1,200E	ND	J
Flouranthene	7,700	11,000	8,400	140,000	140,000E	ND	2,300	27,000	34,000	12,000	12,000E	7,900E	J	9,600
Pyrene	7,800	10,000	8,600	140,000	140,000E	ND	2,900	26,000	32,000	9,200	8,400	5,700E	ND	8,800
Fluorene	J	J	J	2,200	2,500,000E	ND	ND	1,400	1,700	J	J	J	ND	J

**Notes:**

All results reported in ug/kg

E = Estimated Value

ND = Not Detected

J = Estimated value, compound present below CRQL but above IDL

TABLE 1: SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES  
COLLECTED AT THE ELIZABETH COAL GAS SITE #2  
BY THE NUS CORP. REGION 2 FIT ON JUNE 12, 1990 (CONT'D)

COMPOUND	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
<b>SEMIVOLATILES (CONT'D)</b>														
Benzo(a)anthracene	5,900	7,200	5,600	74,000	2,500,000E	ND	1,600	14,000	16,000	12,000	7,100	3,600E	ND	3,600
Chrysene	5,400	7,800	5,800	140,000	2,800,000E	ND	1,500	22,000	27,000	12,000	9,200	4,400E	ND	5,400
Benzo(b)fluoranthene	4,900	5,300	4,600	82,000	1,500,000E	ND	1,700	14,000	16,000	16,000E	8,400	5,100E	ND	5,000
Benzo(k)fluoranthene	2,900	3,800	3,200	ND	1,400,000E	ND	ND	7,600	ND	ND	3,800	2,500E	ND	ND
Benzo(a)pyrene	3,700	3,700	3,100	94,000	1,900,000E	ND	1,200	9,600	4,100	9,000	6,100	3,600E	ND	3,300
Indeno(1,2,3-cd)pyrene	3,200	3,200	2,800	73,000	1,000,000E	ND	1,000	8,700	8,900	8,200	5,200	2,700E	ND	2,500
Dibenz(a,h)anthracene	1,900	1,700	1,700	11,000	570,000E	ND	J	6,000	5,100	3,500	2,200	1,100E	ND	940
Benzo(g,h,i)perylene	2,800	2,800	2,500	57,000	870,000E	ND	830	8,400	8,000	8,400	3,900	2,100E	ND	3,000
<b>PESTICIDES</b>														
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	230	220E	J	J	ND	ND	J

Notes:

All results reported in ug/kg.

E = Estimated Value

ND = Not Detected

J = Estimated value, compound present below CRQL but above IDL

## PART VII: SITE SUMMARY AND RECOMMENDATIONS

The Elizabeth Coal Gas Site #2 is an inactive former coal gasification site located in a mixed urban residential and industrial area between South Street, High Street, Fourth Avenue, and the Elizabeth River under the U. S. Routes 1 and 9 Viaduct in Elizabeth, New Jersey. The site is comprised of approximately 2 acres and can be divided into two sections. The northern section of the site is an active salvage area while the southern portion is inactive and is used for flood control and as a public-access baseball field.

The site has been owned by Elizabethtown Gas Light Company since 1855 and was used to manufacture coal gas until approximately 1901. Coal gas operations took place primarily in the northern portion of the site but most likely extended into the southern portion also. Presently, the northern section of the property is still owned by Elizabethtown Gas Light Company but is operated by Vignola Salvage Corp. as a storage and light industrial facility. The southern half of the property was donated to the Union County Department of Parks and Recreation by the City of Elizabeth in 1953. This part of the property is part of a flood control project. A small rectangular parcel of property, which encompasses the baseball diamond itself, is owned by the Church of Saint Anthony (Ref. No. 28).

Actual waste handling practices used at the plant during the time of coal gas production are largely unknown. It is very likely that coal and coke were stored on site in large piles. Waste materials which were not marketable, such as poor quality tars and oils, were probably deposited in unlined pits on site. Analytical results of surface and subsurface soil samples taken during the NUS Region 2 FIT site inspection indicate the presence of elevated concentrations of compounds associated with coal gas manufacturing wastes. A substance assumed to be solidified coal tar was encountered at sample location S5, and elevated levels of various organic compounds including high levels of polynuclear aromatic hydrocarbons (PAHs) were detected in a sample of the material. Although levels of PAHs were generally higher than those found in the sample that was intended to represent the background conditions, in many instances "background" levels for other compounds detected were comparable to or higher than those found in some on-site soil samples. This indicates that either those on-site samples are unaffected by facility wastes or that the residential area where the "background" sample was collected has been impacted by the site. Some remedial action has been reported to have occurred at the site along with the removal and/or addition of unknown amounts of soil during the flood control basin construction (Ref Nos. 1, p. A-1; 26).

The site is completely fenced with a locked gate along Centre Street. However, there is an open gate along High Street which permits access to the site. There is a high potential for a release of contaminants to both groundwater and surface water from the facility; however, groundwater and



## **PART VII: SITE SUMMARY AND RECOMMENDATIONS (Cont'd)**

surface water in the area are used for industrial and commercial purposes only. A portion of the site is used as a baseball field and children were observed on site. Because of the high potential for direct contact with on-site wastes and contaminated surface soils to occur, a **LISTING SITE INSPECTION** is recommended for the Elizabeth Coal Gas Site #2. Recommendations for further work should include a soil boring program to determine the quantity and extent of the waste deposited, and soil sampling of nearby residential properties to determine whether or not contaminants have migrated off site. Due to the elevated concentrations of PAH compounds and other compounds generally associated with coal gas wastes that were detected in surface soils, it is also recommended that emergency action be taken to prevent access to the site by unauthorized personnel (i.e., children who pass through or use the ballfield on site).

**ATTACHMENT B**



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service  
Centers for Disease Control

Memorandum

Date February 21, 1991

From Environmental Health Scientists, Emergency Response and  
Consultation Branch (ERCB), Division of Health Assessment and  
Consultation (DHAC), ATSDR (E32)  
Subject Health Consultation: Elizabeth Coal Gas Site  
Elizabeth, Union County, New Jersey

To Lisa Voyce, Regional Representative  
ATSDR Region II  
Through: Director, DHAC ATSDR (E32) KSA L. RCW  
Acting Chief, ERCB, DHAC, ATSDR (E32) Dr. J. H. H.

BACKGROUND AND STATEMENT OF ISSUES

The U.S. Environmental Protection Agency (EPA) Region II asked the Agency for Toxic Substances and Disease Registry (ATSDR) to review surface and subsurface soil data associated with the Elizabeth Coal Gas Site (ECG) and to advise them on the health risk implications of the contaminants detected on-site.

The ECG consists of approximately 2 acres. It is bordered to the north by light industry, to the west and south by the Elizabeth River, and to the southeast and east by residential areas. Several schools are located within a 1 to 1/2 mile radius of the site. Although the public access to the site is possible through open gates or unfenced areas, the majority of the site is fenced or surrounded by a concrete bulkhead along the river or a stone wall along other portions of the site.

Historically, the site was used for the production of coal gas from 1855 to about 1901. Unknown quantities of wastes and most likely coal tar or oil still bottoms were reportedly dumped in lined pits on-site. The exact size, numbers, and locations of these pits are not known. Based on observations at similar sites, disposed wastes probably included or contained ammonia, ammonium sulfate, sulfur, coke, coal tar pitch, clinker, and light oils.

Over the years, a number of structures were built on-site. However, only the retort house and an office building still exist from the coal gas era and are located in the northern half of the site. Presently, the northern half of the site is used by an active salvage yard for storage and light industry. The southern half is used for flood control and as a public baseball field. Children have been observed on-site. Little information is known about the use of the site since 1901.

In January of 1987, eight soil borings were drilled and nine test pits were excavated on-site. The contaminants found at that time included elevated concentrations of polycyclic aromatic hydrocarbons (PAHs), ranging from over 40 parts per million (ppm) to 3,090 ppm. Elevated concentrations of dibenzofuran, naphthalene, and lead were also detected. Information about the locations of the sampling areas was not provided for this Health Consultation.

Sampling of the southern half of the site was again conducted in 1990. Six surface soil samples and seven subsurface soil samples were collected and analyzed for organic and inorganic contaminants. One surface soil sample was obtained from an off-site area across the street from the public baseball field (see attachment).

Surface soil samples contained concentrations of PAHs ranging from 13-184 ppm. The highest concentrations of PAHs (102-184 ppm) were detected in areas around the pooled water on-site (S8 and S9). Cyanide (2.2 ppm) was detected in one surface soil location (S8). Surface soil samples contained concentrations of lead ranging from 14-314 ppm. The pooled water on-site was not sampled.

#### DOCUMENTS AND INFORMATION REVIEWED

1. Final Draft Site Investigation report Elizabeth Coal Gas Site #2, Elizabeth, N.J. Vol. 1 of 2, Sept. 17, 1990
2. ATSDR, Toxicological Profile for Cyanide, ATSDR/TP-88/12, December 1989.
3. ATSDR, Toxicological Profile for Polycyclic Aromatic Hydrocarbons, Draft for Public Comment, February 1990.
4. ATSDR, Toxicological Profile for Lead, ATSDR/TP-88/17, June 1990.

#### DISCUSSION

Since the site is used by the public as a recreational area (baseball field), feasible exposure pathways at this site include direct dermal contact with the soils and, possibly with the pooled water. Consumption of the pooled water is unlikely.

Available data from toxicity studies in laboratory animals have shown that long-term exposures to a number of the PAHs via the oral and dermal routes could cause cancer. Reports in humans have shown that humans exposed by dermal contact

for long periods of time may also develop cancer. Direct contact with the PAHs may also result in skin and eye irritation. Levels of PAHs in at least one area of the site are at levels that could be of public health concern. However, frequency of contact will determine potential for adverse health effects to occur.

Based on experimental evidence in animals and observations in humans exposed to cyanide, the cyanide level of 2.2 ppm in surface soil found in one discrete sample is not likely to pose a human health concern. A child would have to ingest several hundred grams of soil containing cyanide at this level in the course of 1 day before any acute health effects would be expected to occur. Typical estimates of daily soil ingestion by children ranges from 0.01 to 10 grams to include pica behavior. Chronic ingestion of the soil containing cyanide at the levels detected would not be expected to lead to adverse health effects.

Current understanding of the contribution of lead in soil to the total body burden in children suggests that the maximum lead levels detected in the soil samples at this site would not be expected to lead to adverse health effects in children, particularly if this is the only source for lead exposure. If, however, children are being exposed to levels of lead through other sources, such as through drinking water or lead-based paints, chronic exposure to lead concentrations on-site could further contribute to a total body burden of lead.

#### CONCLUSIONS

Based on the reviewed information, ATSDR concludes that the levels of PAHs detected in areas near the pooled water could pose a health threat to young children who play in these areas. Since data are not available on concentrations of contaminants in the pooled water or related sediments, ATSDR cannot comment on the possible health threats, if any, posed by ingestion or direct contact with them.

#### RECOMMENDATIONS

1. Restrict access to area of elevated concentrations of PAHs and the pooled water.
2. Initiate steps to limit migration of contaminants to recreational areas.
3. Continue to monitor soil levels if recommendation 2 is deferred.

Page 4 - Lisa Voyce

If additional information becomes available, or you desire further clarification, please do not hesitate to contact the Branch.

  
Jerome Cater, Ph.D.

  
Martha Dee Kent

Attachment